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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE
BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of: Mary Lafuze Comer

Serial No.: 10/521,398

Confirmation No.: 2261

Filed: January 14, 2005

For: INTERLEAVING OF BASE AND ENHANCEMENT LAYERS FOR HD-DVD

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Group Art Unit: 2621

Examiner: Robert Chevalier

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Commissioner for Patents
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APPEAL BRIEF

Dear Sir:

Appellant submits this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 2621 dated April 23, 2007, finally rejecting claims 1-27.

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Real Party in Interest

The real party in interest is Thomson Licensing.

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Related Appeals and Interferences

Appellant asserts that no other appeals or interferences are known to the Appellant, the Appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

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Status of Claims

Claims 1-27 were originally presented with the filed application. The Appellant's claims 1 and 15 were amended in a Response dated February 27, 2007 to overcome a 35 U.S.C. § 101 nonfunctional descriptive material rejection and not in response to prior art. All other claims continue unamended.

In the Appellant's application, the Appellant's claims 15-27 stand finally rejected under 35 U.S.C. § 101 as being directed to a recording medium storing nonfunctional descriptive material. In addition, the Appellant's claims 1-12 and 15-25 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Hughes, Jr. et al. (U.S. Patent Application No. 2004/0033061, hereinafter "Hughes") in view of Horne et al. (U.S. Patent No. 5,515,377, hereinafter "Horne"). Even further, the Appellant's claims 13-14 and 26-27 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Hughes and Horne as applied to claims 1 and 15-16, and further in view of Official Notice.

The claims on appeal are claims 1-27 as presented in the Response dated February 27, 2007. That is, the claims on appeal are the Appellant's claims 1-27, which are listed in the attached Claims Appendix.

Status of Amendments

A first response was filed on February 27, 2007 to overcome a First Office Action dated November 30, 2006. In the First Office Action, the Examiner rejected the Appellant's claims 1-5, 8-12, 15-18, and 21-25 under 35 U.S.C. § 102(e) as being anticipated by Hughes, Jr. et al. (U.S. Patent Application No. 2004/0033061, hereinafter "Hughes"). The Examiner further rejected the Appellant's claims 13-14 and 26-27 under 35 U.S.C. § 103(a) as being unpatentable over Hughes in view of Official Notice. Lastly, the Examiner rejected the Appellant's claims 15-27 under 35 U.S.C. § 101 as being directed to a recording medium storing nonfunctional descriptive material. In the response filed on February 27, 2007, the Appellant amended claims 1 and 15 to overcome the rejection of claims 15-27 under 35 U.S.C. § 101 and set forth arguments traversing the rejections issued by the Examiner and distinguishing the Appellant's invention over the cited prior art.

The Examiner responded to the Appellant's response of February 27, 2007 with a Final Office Action dated April 23, 2007. In the Final Office Action, the Examiner again rejected the Appellant's claims 15-27 under 35 U.S.C. § 101 as being directed to a recording medium storing nonfunctional descriptive material. In addition, the Examiner rejected the Appellant's claims 1-12 and 15-25 under 35 U.S.C. § 103(a) as being unpatentable over Hughes in view of Horne et al. (U.S. Patent No. 5,515,377, hereinafter "Horne"). Lastly, the Examiner rejected the Appellant's claims 13-14 and 26-27 under 35 U.S.C. § 103(a) as being unpatentable over Hughes and Horne as applied to claims 1 and 15-16, and further in view of Official Notice. In response to the Final Office Action dated April 23, 2007, the Appellant submitted a response dated July 06, 2007. In the response filed on July 06, 2007, the Appellant again set forth arguments traversing the rejections issued by the Examiner and distinguishing the Appellant's invention over the cited prior art.

The Examiner responded to the Appellant's response of July 06, 2007 with an Advisory Action dated July 23, 2007. In the Advisory Action, the Examiner stated that the Appellant's response to the Final Office Action did not place the Appellant's application in condition for allowance and the Examiner reiterated the rejection of the Appellant's claims 1-27. In response to the Advisory Action, the Appellant submitted a Notice of Appeal dated August 17, 2007.

Summary of Claimed Subject Matter

Embodiments of the Appellant's invention provide a method of providing multiple versions of a digital recording by, in various embodiments, multiplexing a base layer with an enhancement layer on a storage medium. The base layer can have base data representing a first version of the digital recording and the enhancement layer can have enhancement data which can be combined with the base data to represent a second version of the digital recording. In one embodiment, the first version of the digital recording can include standard definition program content, and the second version of the digital recording can include high definition program content.

In the Appellant's invention, the multiplexing step can include the step of interleaving the base layer with the enhancement layer. The interleaving step can further include the steps of dividing video objects within the base layer into base interleave units and dividing video objects within the enhancement layer into enhancement interleave units. The base interleave units and enhancement interleave units can be stored on the storage medium in an alternating fashion. The base layer and the enhancement layer can further be stored on a single side of the storage medium, which can be a digital video disc (DVD).

The Appellant teaches that a number of base interleave units associated with the base layer can be approximately equal to the number of enhancement interleave units associated with the enhancement layer. Also, the playback time correlating to the base interleave units can be approximately equal to a playback time correlating to the enhancement interleave units. In addition, the base data can be stored in a format substantially similar to MPEG-2 and the enhancement data can be stored in a format substantially similar to H.264. Furthermore, the Appellant teaches that one or more time stamps can be provided with the base layer. For example, a decoder time stamp and a presentation time stamp can be provided with the base layer. Time stamps also can be provided for the enhancement layer.

Embodiments of the method of the Appellant's invention also can include the step of providing a first program chain which links together cells associated with base interleave units. Further, a second program chain can be provided which can be merged with the first program chain to form a hybrid program chain. The hybrid

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program chain can link together the cells associated with the base interleave units and cells associated with enhancement interleave units in an order appropriate for generating the second version of the digital recording.

In an alternate embodiment of the Appellant's invention, a first program chain can be provided which links together cells associated with base interleave units to generate a first bitstream. Further, a second program chain can be provided which links together cells associated with enhancement interleave units to generate a second bitstream. The first and second bitstreams can be merged during playback to generate the second version of the digital recording.

The Appellant further teaches that in an alternate embodiment, the Appellant's invention provides a DVD medium including a base layer and an enhancement layer. The base layer can include base data representing a first version of a digital recording and the enhancement layer can include enhancement data which can be combined with the base data to represent a second version of the digital recording. The second version of the digital recording can include high definition program content. The base layer and the enhancement layer can be interleaved.

The Appellant teaches that video objects within the base layer can be divided into base interleave units and video objects within the enhancement layer can be divided into enhancement interleave units. The base interleave units and the enhancement interleave units can be stored on the storage medium in an alternating fashion. A number of base interleave units can be approximately equal to a number of enhancement interleave units. Moreover, a playback time correlating to the base interleave units can be approximately equal to a playback time correlating to the enhancement interleave units.

In the invention of the Appellant, the base data can be stored on the DVD medium in a format substantially similar to MPEG-2 and the enhancement data can be stored on the DVD medium in a format substantially similar H.264. Further, the base layer and the enhancement layer can be stored on a single side of the DVD medium. The base layer and the enhancement layer can include at least one time stamp, for example a decoder time stamp and/or a presentation time stamp. In addition, the DVD medium can include a first program chain which links together cells associated with base interleave units. The DVD medium also can include a second program chain which can be merged with the first program chain to form a

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hybrid program chain. The hybrid program chain can link together the cells associated with the base interleave units and cells associated with enhancement interleave units in an order appropriate for high definition playback.

Alternatively, the Appellant teaches that the DVD medium can include a first program chain which links together cells associated with base interleave units to generate a first bitstream. The DVD medium also can include a second program chain which links together cells associated with enhancement interleave units to generate a second bitstream. The first and second bitstreams can be merged during playback to generate the second version of the digital recording.

As suggested in MPEP 1206, the Appellant now reads at least two of the broadest appealed claims on the specification and on the drawings. It should be understood, however, that the appealed claims may read on other portions of the specification or other figures that are not listed below.

The Appellant's Specification specifically refers to FIG. 1 for teaching a hybrid scalable encoder (encoder) 100 which can parse an original HD sequence, such as a video title, into a base data bitstream and an enhancement data bitstream in accordance with an embodiment of the present invention. The Appellant teaches that the encoder 100 can be realized in hardware, software, or a combination of hardware and software. The encoder 100 can include a decomposition unit 110, a base encoder 112, an SD frame buffer 114, an interpolator 116, a summing block 118, a clipper 120, an HD frame buffer 122, and an enhancement encoder 124.

The Appellant teaches that in one embodiment the decomposition unit 110 can parse the original HD sequence into base pixels and enhancement pixels. The base pixels can be pixels representing an SD version of the sequence. The enhancement pixels can be pixels which can be recombined with the base pixels to represent an HD version of the sequence.

The base encoder 112 can encode the base pixels into a format recognizable by an SD-DVD and output a base data bitstream. Similarly, the enhancement encoder 124 can encode the enhancement pixels using a suitable coding scheme and output an enhancement data bitstream. In the preferred arrangement, the compression scheme provided by the encoders 112, 124 should provide adequate coding efficiency to store both the SD data and the enhancement data on a single side of a DVD. Accordingly, one side of the DVD can be available for labeling purposes. For

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example, the base encoder 112 can encode the base pixels using an MPEG-2 format.

Again referring to Fig. 1, the Appellant teaches that the SD frame buffer 114 can be a data buffer associated with the base encoder 112 to buffer reconstructed base pixels created by the base encoder 112. Such reconstructed base pixels may be subsequently referenced by the base encoder 112 when generating groups of pictures (GOP's) having predicted and bidirectional frames. Further, the SD frame buffer 114 can temporarily store the reconstructed base pixels until being forwarded to other components within the encoder 100. The Appellant further teaches that the interpolator 116 can interpolate blocks of reconstructed base pixels into blocks of pixels that are size compatible with HD pixel blocks. For example, the interpolator 116 can interpolate 11x9 blocks of reconstructed base pixels into 16x16 blocks of reconstructed base pixels. The decomposition unit 110 then can subtract the 16x16 blocks of reconstructed base pixels from correlating blocks of pixels in the original HD sequence to generate the enhancement pixels.

The Appellant's Specification further teaches that the summing block 118 can sum the 16x16 blocks of reconstructed base pixels with reconstructed enhancement pixel blocks generated by the enhancement encoder 124 to generate summed pixel blocks. The summed pixel blocks can be trimmed to usable values by the clipper 120. For example, the clipper 120 can limit 8 bit summed pixels to values between -128 and 127. The HD frame buffer 122 can buffer the summed pixel blocks for use by the enhancement encoder 124 in creating groups of pictures in the enhancement data bitstream. Furthermore, it is taught by the Appellant that a data store 126 can be provided for storing the base data bitstream and the enhancement data bitstream. The data store 126 can be an optical storage medium, a magnetic storage medium, a magneto-optical storage medium, an electronic storage medium, or any other storage medium which can store digital data. For example, in one arrangement, the data store 126 can be a DVD. The DVD can be single layer or multi-layer. Moreover, the DVD can contain data on one or two sides. In another arrangement, the data store 126 can be another storage type, such hard disc drive (HDD), RAM, and so on. In such an arrangement, the base and enhancement data streams can be transferred to one or more DVD's from the data store 126.

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The Appellant teaches that in various embodiments, the base data bitstream can be recorded onto the DVD as a base layer and the enhancement data bitstream can be recorded onto the DVD as an enhancement layer. The base layer and enhancement layer can be multiplexed such that SD-DVD players can read and decode the base layer and a hybrid HD-DVD player can read and decode both layers.

With reference to Fig. 3, the Appellant teaches an embodiment of a down-sampling algorithm 300 which can be performed by a decomposition unit of the Appellant's invention to generate the base pixels. The Appellant teaches that an original HD block 310 can be divided into four 8x8 sub-blocks 320, 330, 340 and 350, respectively. An 8x8 integer transform can be applied in parallel to each of the sub-blocks by the 8x8 integer transformers 321, 331, 341 and 351, respectively. Next, low-pass filtering can be performed on each of the transformed sub-blocks by low-frequency sub-block extractors 322, 332, 342 and 352, respectively. The low-pass filtering can extract the low frequency transform coefficients from the 8x8 sub-blocks. The low-pass filtered sub-blocks then can be zero-padded to 5x4 sub-blocks by the zero-padding blocks 323, 333, 343 and 353, respectively. Inverse transforms can then be applied to each of the zero-padded sub-blocks by 5x4 inverse transformers 324, 334, 344 and 354, respectively, to provide new sub-blocks 325, 335, 345 and 355 that make up a new block 312. An integer transform then can be applied to the new block 312 by a 10x8 integer transformer 314, which can be coupled to an 11x9 zero-padder 316. The zero-padder 316 can be coupled, in turn, to an 11x9 inverse transformer 318 that provides the base layer pixels.

In accordance with the Appellant's invention, the Appellant teaches that all of the transformations shown in Fig. 3 can be coded as a single matrix transformation, making it possible to implement the procedure as a two-step process. The two step process can comprise a post-multiplication by a first downsampling matrix for horizontal downsampling, followed by a pre-multiplication by a second downsampling matrix for vertical downsampling. Alternatively, the pre-multiplication can be performed first, followed by the post-multiplication. This two step decomposition provides greater flexibility in the ratio of resolutions between the enhancement and base layers.

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The Appellant then refers to Fig. 4 for teaching an 8x8 sub-block 400 of transform coefficients which corresponds to the sub-blocks 320, 330, 340 and 350 of Fig. 3. The 8x8 sub-block 400 can include an upper left portion 410, which can include the most significant transform coefficients which are extracted by the low-frequency sub-block. The remaining transform coefficients can be used to create the enhancement layer 412. In one arrangement, the upper left portion can be a 5x4 sub-block of transform coefficients. However, the upper left portion also can be smaller than a 5x4 sub-block. Accordingly, a greater portion of the 8x8 sub-block 400 can be encoded in the enhancement layer using a coding scheme which is more efficient than the coding scheme that is likely to be used for the base layer. Further, the smaller number of base layer coefficients can be coded to give better accuracy in the base layer for a given base layer bit rate. Hence, these coefficients may not need to be refined in the enhancement layer. Notably, the selection of coefficients for the base layer can be either pre-determined or adaptive.

With reference to Fig. 5, the Appellant teaches an interpolation algorithm 500 which can be performed by the interpolator to convert blocks of reconstructed base pixels into blocks of pixels that are size compatible with HD pixel blocks. The Appellant teaches that in one embodiment, the algorithm 500 includes an 11x9 integer transformer 510 for transforming the reconstructed version of $B_{11 \times 9}$, denoted $B'_{11 \times 9}$. The block 510 can be coupled to a 10x8 truncation block 512 which truncates pixel values in $B'_{11 \times 9}$. A 10x8 inverse transform block 514 also can be provided that outputs an intermediate block 516. The intermediate block 516 can include four subdivided sub-blocks 560, 570, 580 and 590, respectively. An integer transform can be applied to each of these sub-blocks by 5x4 integer transformers 562, 572, 582 and 592, respectively. Next, the transformed sub-blocks can be zero-padded by 8x8 zero-padders 564, 574, 584 and 594, respectively. The zero-padded transformed sub-blocks then can be inverse transformed by 8x8 inverse transformers 566, 576, 586 and 596, respectively, to form corresponding new sub-blocks 568, 578, 588 and 598. The new sub-blocks 568, 578, 588 and 598 can collectively make-up block 518, represented as $B'_{16 \times 16}$. The Appellant teaches that as with decomposition, the interpolation can be provided in two steps using a matrix transformation.

With reference to Fig. 6, the Appellant teaches

a hybrid scalable decoder (decoder) 600 which can be used to decode the base data bitstream and the enhancement data bitstream to generate the SD and HD video streams, which can be forwarded to one or more video displays. The decoder 600 of the Appellant's invention can be realized in hardware, software, or a combination of hardware and software and can include a base decoder 610, an SD frame buffer 612, an interpolator 614, an enhancement decoder 616, a summing block 618, a clipper 620, an HD frame buffer 622, and an enhancement encoder 124.

The Appellant teaches that the base decoder 610 can receive the base data bitstream, for example after it has been read from a DVD by a playback interface, and decode the base data bitstream into an uncompressed format. For example, the base decoder 610 can decode the base data bitstream from an MPEG-2 format into a luminance and chrominance video stream having SD frames formed of pixels reconstructed in the decoding process. The luminance and chrominance video stream then can be forwarded to a display, or further encoded into another format, for example into an NTSC, PAL, SECAM, S-video, or any other suitable format. The base decoder 610 can be coupled to an SD frame buffer 612 for buffering standard-definition frames during the decoding process. The SD frame buffer 612 can further provide an output suitable for an SD display.

In the Appellant's invention, the enhancement decoder 616 can decode an enhancement data bitstream, for example after it has been read from a DVD by a playback interface, and decode the enhancement data bitstream into an uncompressed format. For example, the enhancement decoder 616 can decode the enhancement data bitstream from an H.264 format into blocks of enhancement pixels which can be combined with blocks of reconstructed SD pixels for use in generating an HD video stream. Furthermore, the interpolator 614 can receive reconstructed base pixels from the base decoder 610 and interpolate blocks of the reconstructed base pixels into blocks of pixels that are size compatible with HD pixel blocks. For example, the interpolator 614 can interpolate 11x9 blocks of base pixels into 16x16 blocks of base pixels. The interpolation process can follow an

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interpolation algorithm which is much the same as the interpolation process described for Fig. 5.

The summing block 618 in the invention of the Appellant can sum blocks of base pixels generated by the interpolator 614 with blocks of pixels generated by the enhancement encoder 616 to generate reconstructed HD frames. Pixel values within the reconstructed HD frames can be trimmed to usable values by the clipper 620. For example, the clipper 620 can limit 8 bit pixels to values between -128 and 127. The HD frame buffer 622 can buffer the reconstructed HD frames for use by the enhancement decoder 616 in creating the enhancement pixels during the decoding process. The HD frame buffer also can provide an output suitable for an HD display. For example, the output can provide a luminance and chrominance video stream having the reconstructed HD frames.

For the convenience of the Board of Patent Appeals and Interferences, the Appellant's pending claims are presented below in claim format with elements read on the appropriate citations to at least one portion of the specification for each element of the appealed claims.

Claim 1 positively recites (with reference numerals added, where applicable):

1. A method of providing multiple versions of a digital recording comprising the step of multiplexing a base layer with an enhancement layer, said base layer having base data including cells associated with base interleave units and representing a first version of the digital recording, and said enhancement layer having enhancement data including cells associated with enhancement interleave units, wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of the digital recording. (See Appellant's specification, page 2, line 10 through page 3, line 9 and page 8, lines 9-26).

Claim 2 positively recites:

2. The method of claim 1, wherein said multiplexing step comprises the step of interleaving said base layer with said enhancement layer. (See Appellant's specification, page 2, lines 18-19 and page 8, lines 14-15).

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Claim 3 positively recites:

3. The method of claim 2, wherein said interleaving step further comprises the steps of:
 - dividing video objects within said base layer into base interleave units;
 - dividing video objects within said enhancement layer into enhancement interleave units; and
 - storing said base interleave units and said enhancement interleave units in an alternating scheme. (See Appellant's specification, page 8, lines 14-21).

Claim 4 positively recites:

4. The method of claim 3, wherein a number of said base interleave units is approximately equal to a number of said enhancement interleave units. (See Appellant's specification, page 8, lines 21-23).

Claim 5 positively recites:

5. The method of claim 3, wherein a playback time correlating to said base interleave units is approximately equal to a playback time correlating to said enhancement interleave units. (See Appellant's specification, page 8, lines 23-26).

Claim 6 positively recites:

6. The method of claim 3, further comprising the steps of:
 - providing a first program chain which links together cells associated with said base interleave units; and
 - providing a second program chain which can be merged with said first program chain to form a hybrid program chain, said hybrid program chain linking together cells associated with said base interleave units and cells associated with said enhancement interleave units in an order appropriate for generating said second version of the digital recording. (See Appellant's specification, page 9, lines 23-31).

Claim 7 positively recites:

7. The method of claim 3, further comprising the steps of:
 - providing a first program chain which links together cells associated with said base interleave units to generate a first bitstream;
 - providing a second program chain which links together cells associated with said enhancement interleave units to generate a second bitstream; and

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during playback, merging said first and second bitstreams to generate said second version of the digital recording. (See Appellant's specification, page 3, lines 10-15 and page 9, line 32 through page 10, line 2).

Claim 8 positively recites:

8. The method of claim 1, further comprising the step of coding said base data in a format substantially similar to MPEG-2. (See Appellant's specification, page 6, lines 19-20 and page 12, lines 21-24).

Claim 9 positively recites:

9. The method of claim 1, further comprising the step of coding said enhancement data in a format substantially H.264. (See Appellant's specification, page 2, lines 31-32 and page 6, lines 20-22).

Claim 10 positively recites:

10. The method of claim 1, wherein said second version of the digital recording comprises high definition program content. (See Appellant's specification, page 3, lines 20-21 and page 10, lines 1-2 and page 12, line 32 through page 13, line 2).

Claim 11 positively recites:

11. The method of claim 1, wherein said base layer and said enhancement layer are stored on a single side of said storage medium. (See Appellant's specification, page 2, lines 23-25 and page 5, lines 16-18 and page 6, lines 15-18).

Claim 12 positively recites:

12. The method of claim 1, wherein said storage medium is a digital video disc (DVD). (See Appellant's specification, page 2, lines 23-25 and page 5, lines 18-20 and page 6, lines 15-18).

Claim 13 positively recites:

13. The method of claim 1, further comprising the step of adding at least one time stamp to at least one of said base layer and said enhancement layer. (See Appellant's specification, page 2, line 33 through page 3, line 2 and page 4, lines 1-3 and page 8, line 32).

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Claim 14 positively recites:

14. The method of claim 13, wherein said at least one time stamp comprises at least one of a decoder time stamp and a presentation time stamp. (See Appellant's specification, page 2, line 33 through page 3, line 2 and page 4, lines 1-3 and page 8, line 32 through page 9, line 3).

Claim 15 positively recites:

15. A DVD medium comprising:
a base layer comprising base data including cells associated with base interleave units representing a first version of a digital recording; and
an enhancement layer comprising enhancement data including cells associated with enhancement interleave units, wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording;
wherein said base layer and said enhancement layer are interleaved. (See Appellant's specification, page 5 line 16 through page 9, line 16).

Claim 16 positively recites:

16. The DVD medium of claim 15, wherein said video objects within said base layer are divided into base interleave units, said video objects within said enhancement layer are divided into enhancement interleave units, and said base interleave units and said enhancement interleave units are stored on said storage medium in an alternating fashion. (See Appellant's specification, page 8, lines 14-20).

Claim 17 positively recites:

17. The DVD medium of claim 16, wherein a number of said base interleave units is approximately equal to a number of enhancement interleave units. (See Appellant's specification, page 8, lines 21-23).

Claim 18 positively recites:

18. The DVD medium of claim 16, wherein a playback time correlating to said base interleave units is approximately equal to a playback time correlating to said enhancement interleave units. (See Appellant's specification, page 8, lines 23-26).

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Claim 19 positively recites:

19. The DVD medium of claim 16, further comprising:
 - a first program chain which links together cells associated with said base interleave units; and
 - a second program chain which can be merged with said first program chain to form a hybrid program chain, said hybrid program chain linking together said cells associated with said base interleave units and cells associated with said enhancement interleave units in an order appropriate for generating said second version of said digital recording. (See Appellant's specification, page 9, lines 23-31).

Claim 20 positively recites:

20. The DVD medium of claim 16, further comprising:
 - a first program chain which links together cells associated with said base interleave units to generate a first bitstream; and
 - a second program chain which links together cells associated with said enhancement interleave units to generate a second bitstream;

wherein said first and second bitstreams are merged during playback to generate said second version of said digital recording. (See Appellant's specification, page 3, lines 10-15 and page 9, line 32 through page 10, line 2).

Claim 21 positively recites:

21. The DVD medium of claim 16, wherein said base data is stored in a format substantially similar to MPEG-2. (See Appellant's specification, page 6, lines 19-20 and page 12, lines 21-24).

Claim 22 positively recites:

22. The DVD medium of claim 15, wherein said enhancement data is provided in a format substantially similar H.264. (See Appellant's specification, page 2, lines 31-32 and page 6, lines 20-22).

Claim 23 positively recites:

23. The DVD medium of claim 15, wherein said second version of said digital recording comprises high definition program content. (See Appellant's specification, page 3, lines 20-21 and page 10, lines 1-2 and page 12, line 32 through page 13, line 2).

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Claim 24 positively recites:

24. The DVD medium of claim 15, wherein said base layer and said enhancement layer are stored on a single side of said first storage medium. (See Appellant's specification, page 2, lines 23-25 and page 5, lines 16-18 and page 6, lines 15-18).

Claim 25 positively recites:

25. The DVD medium of claim 15, wherein said first storage medium is a digital video disc (DVD). (See Appellant's specification, page 2, lines 23-25 and page 5, lines 18-20 and page 6, lines 15-18).

Claim 26 positively recites:

26. The DVD medium of claim 15, wherein at least one of said base layer and said enhancement layer comprises at least one time stamp. (See Appellant's specification, page 2, line 33 through page 3, line 2 and page 4, lines 1-3 and page 8, line 32).

Claim 27 positively recites:

27. The DVD medium of claim 26, wherein said at least one time stamp comprises at least one of a decoder time stamp and a presentation time stamp. (See Appellant's specification, page 2, line 33 through page 3, line 2 and page 4, lines 1-3 and page 8, line 32 through page 9, line 3).

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Grounds of Rejections to be Reviewed on Appeal

1. Whether the Appellant's claims 15-27 are patentable under 35 U.S.C. § 101.
2. Whether the Appellant's claims 1-12 and 15-25 are patentable under 35 U.S.C. § 103(a) over Hughes, Jr. et al. (U.S. Patent Application No. 2004/0033061, hereinafter "Hughes") in view of Horne et al. (U.S. Patent No. 5,515,377, hereinafter "Horne").
3. Whether the Appellant's claims 13-14 and 26-27 are patentable under 35 U.S.C. § 103(a) over Hughes and Horne as applied to claims 1 and 15-16, and further in view of Official Notice.
4. Pending claims 1-12 and 15-25 and 13-14 and 26-27 have been grouped together, respectively, by the Examiner in their rejection. Appellant urges that each of the rejected claims stands on its own recitation, the claims being considered to be separately patentable for the reasons set forth in more detail *infra*.

ARGUMENT

I. THE EXAMINER ERRED IN REJECTING CLAIMS 15-27 UNDER 35 U.S.C. § 101 AT LEAST BECAUSE CLAIMS 15-27 COMPRIZE A PHYSICAL, INTERCONNECTED AND FUNCTIONAL ARRANGEMENT OF CONTENTS OF A STORAGE MEDIUM AND THUS IS ASSERTED TO COMPRIZE STATUTORY SUBJECT MATTER WHICH FALLS WITHIN THE BOUNDARIES OF 35 U.S.C. § 101.

A. 35 U.S.C. § 101 - Claims 15-27

Claims 15-27 were rejected under 35 U.S.C. 101 as allegedly being directed to a recording medium storing nonfunctional descriptive material. The Appellant respectfully disagrees.

With regards to Warmerdam, 33 F.3d at 1361, cited by the Examiner, the 'data structure' patent claim at issue which was held nonstatutory reads as follows:

"6. A data structure generated by the method of any of Claims 1 through 4."

Warmerdam held that such patent claim regarding data structure generated from the process of making "bubble hierarchy" for controlling motion of objects to avoid collision with other objects lacked statutory subject matter, as data structure did not imply physical arrangement of contents of memory.

The Appellant strongly disagrees with the Examiner's allegation that claims 15-27 are directed to a 'data structure' as per Warmerdam. The present claims 15-27 are not claimed in that manner. Instead, the Appellant asserts that the present claim 15 is directed to a functional, physical arrangement of layer elements on a storage medium, namely, an interleaved base and enhancement layer on a DVD medium. More specifically, the Appellant's claim 15 specifically recites:

"A DVD medium comprising:
a base layer comprising base data including cells associated with base interleave units representing a first version of a digital recording; and
an enhancement layer comprising enhancement data including cells associated with enhancement interleave units, wherein said cells associated

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with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording;

wherein said base layer and said enhancement layer are interleaved."

In the Appellant's invention, the functionality of the interleaved layers as claimed in claim 15 is clearly apparent, as such interleaved design advantageously enables the creation of DVDs which may be used to store both SD and HD versions of a movie on a single side of a DVD, as taught in the Specification, e.g., at least on page 2, lines 4-25.

Accordingly, the DVD medium as presently claimed in the Appellant's claim 15 comprises a physical, interconnected and functional arrangement of contents of a memory medium (interleaved base and enhancement layers), and thus is asserted to comprise statutory subject matter which falls within the boundaries of 35 U.S.C. §101.

Therefore, the Appellant submits that for at least the reasons recited above, the Appellant's claims 15-27 fully satisfy the requirements of 35 U.S.C. § 101 and are patentable thereunder.

II. THE EXAMINER ERRED IN REJECTING CLAIMS 1-12 AND 15-25 UNDER 35 U.S.C. § 103 AT LEAST BECAUSE THE CITED REFERENCES FAIL TO MAKE OBVIOUS AT LEAST A METHOD AND DVD MEDIUM FOR PROVIDING MULTIPLE VERSIONS OF A DIGITAL RECORDING INCLUDING AT LEAST “BASE LAYER HAVING BASE DATA INCLUDING CELLS ASSOCIATED WITH BASE INTERLEAVE UNITS AND REPRESENTING A FIRST VERSION OF THE DIGITAL RECORDING”, “ENHANCEMENT LAYER HAVING ENHANCEMENT DATA INCLUDING CELLS ASSOCIATED WITH ENHANCEMENT INTERLEAVE UNITS”, “WHEREIN SAID CELLS ASSOCIATED WITH SAID ENHANCEMENT INTERLEAVE UNITS CAN BE COMBINED WITH SAID CELLS ASSOCIATED WITH SAID BASE INTERLEAVE UNITS TO REPRESENT A SECOND VERSION OF SAID DIGITAL RECORDING”.

A. 35 U.S.C. § 103(a) - Claim 1

The Examiner rejected the Appellant's claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Hughes, Jr. et al. (U.S. Patent Application No. 2004/0033061, hereinafter “Hughes”) in view of Horne et al. (U.S. Patent No. 5,515,377, hereinafter “Horne”). The rejection is respectfully traversed.

The Appellant respectfully submits that Hughes fails to teach, suggest or render obvious at least the Appellant's claim 1, which specifically recites:

"A method of providing multiple versions of a digital recording comprising the step of multiplexing a base layer with an enhancement layer, said base layer having base data including cells associated with base interleave units and representing a first version of the digital recording, and said enhancement layer having enhancement data including cells associated with enhancement interleave units, wherein said cells associated with said enhancement interleave units which can be combined with said cells associated with said base interleave units data to represent a second version of the digital recording."

More specifically, the Appellant's claim 1 recites, *inter alia*, "...said base layer having base data including cells associated with base interleave units and representing a first version of the digital recording" and "an enhancement layer having enhancement data including cells associated with enhancement interleave units, wherein said cells associated with said enhancement interleave units can be

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combined with said cells associated with said base interleave units to represent a second version of the digital recording." (emphasis added).

In contrast to the invention of the Appellant, Hughes teaches a layered encoding system in which a DVD is provided with one data storage track used to store a base layer and a second data storage track to store an enhancement layer. In Hughes, a standard definition is generated by decoding the base layer data and a high resolution image is generated by decoding and combining both the base layer data and the enhancement layer data. However, Hughes fails to disclose or suggest at least a base layer having base data including cells associated with base interleave units and representing a first version of the digital recording, and enhancement data including cells associated with enhancement interleave units, wherein cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of the digital recording, essentially as now claimed in amended claims 1 and 15. In fact in the Final Office Action, the Examiner also concedes that Hughes fails to disclose the feature of the base layer data including cells associated with the base interleaving units and the enhancement layer data including cells associated with the enhancement interleave units as claimed in the Appellant's claims.

Even further, the Appellant submits that the teachings of Horne fail to bridge the substantial gap between the teachings of Hughes and the Appellant's invention, at least with respect to the Appellant's claim 1. That is, the Appellant submits that Horne absolutely fails to teach, suggest or make obvious at least the feature of the base layer data including cells associated with the base interleaving units and the enhancement layer data including cells associated with the enhancement interleave units as claimed in the Appellant's claims. The Appellant further submits that Horne absolutely fails to teach, suggest or make obvious "a base layer comprising base data including cells associated with base interleave units **representing a first version of a digital recording**" and "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units data **to represent a second version of said digital recording**" as taught in the Appellant's Specification and claimed by at least the Appellant's independent claim 1.

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More specifically, Horne teaches an adaptive video encoder for two-layer encoding of video signals on ATM (asynchronous transfer mode) networks. In the invention of Horne, a quality of video images received at the remote end of an ATM network capable of transmitting data at high and low priorities is greatly improved at high cell loss levels by employing a two-layered video encoding technique that adapts the method for encoding information transmitted in the low-priority bit-stream to the rate of cell loss on the network so that compression efficiency and image quality are high when the network load is low and resiliency to cell loss is high when the network load is high. That is, in the Background of the Invention section of Horne, Horne states that a problem exists in the prior art because each network source is allocated less bandwidth than its peak requirement which results in a nonzero probability that cells will be lost or delayed during transmission. As such, Horne's invention is directed to providing a method and apparatus that encodes video with good compression efficiency when network load is low, but with good resiliency to cell loss when network traffic becomes congested. (See Horne, Background).

The Appellant submits that the teachings and invention of Horne are directed to a method and apparatus which provides a two-layered video encoding technique that adapts an algorithm used for encoding information transmitted in a low-priority bit-stream to the level of cell loss on the network so that compression efficiency and image quality are high when the network load is low and resiliency to cell loss is high when the network load is high. (See Horne, Abstract). That is, in the invention of Horne, an enhancement layer bit-stream EL is generated by encoding the difference between the original video signal VIDIN, and the unsampled base layer image, where the base layer image is produced by locally decoding base layer bit-stream BL by two-layer video encoder. More specifically, a base layer and enhancement layer in Horne represent two layers of a single version of an image. More specifically, there is absolutely no teaching or suggestion in Horne for "a base layer comprising base data including cells associated with **base interleave units representing a first version of a digital recording**" and "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units data to represent a **second version of said digital**

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recording" as taught in the Appellant's Specification and claimed by at least the Appellant's independent claim 1.

That is, in the invention of the Appellant, the Appellant teaches and claims base interleave units representing a first version (e.g., SD version) of a digital recording and an enhancement layer including enhancement data including cells associated with enhancement interleave units where the cells associated with the enhancement interleave units can be combined with the cells associated with said base interleave units data to represent a second version (e.g., HD version) of said digital recording. In contrast to the invention of the Appellant, Horne merely teaches a base layer comprising enough basic video information for a decoder to reconstruct a minimally acceptable image, which is transmitted by an ATM network in a high-priority bit-stream and an enhancement layer, which is used to enhance the quality of the image and is transmitted in a low-priority bit-stream. There is no teaching or suggestion in Horne for base interleave units representing a first version (e.g., SD version) of a digital recording and where the cells associated with the enhancement interleave units can be combined with the cells associated with said base interleave units data to represent a second version (e.g., HD version) of said digital recording as taught and claimed by the Appellant.

In further contrast to the invention of Horne, in the Appellant's invention cells may be associated with one or more base/enhancement interleave units. This facilitates the creation of at least two program chains (one each for SD playback and HD playback). The SD program chain can link together the cells associated with the base interleave units and is recognizable by an SD-DVD player. The enhancement program chain can be recognized by hybrid HD-DVD players and can link together the cells associated with the base interleave units and the cells associated with the enhancement interleave units in an order appropriate for HD playback. There is no such teaching or suggestion in Horne for such cells and linking.

As such and for at least the reasons recited above, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious at least the Appellant's claim 1. Therefore, the Appellant submits that for at least the reasons recited above, the Appellant's claim 1 is not rendered obvious by the teachings of Hughes and Horne, alone or in

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any allowable combination, and, as such, claim 1 fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

B. 35 U.S.C. § 103(a) - Claim 2

Claim 2 depends directly from independent claim 1 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 1, the Appellant respectfully submits that dependent claim 2 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 1. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 1 further limited by "wherein said multiplexing step comprises the step of interleaving said base layer with said enhancement layer" as recited in claim 2.

That is, and for at least the same reasons provided in Section A above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 2, which depends directly from independent claim 1.

Therefore, the Appellant submits that claim 2, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

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C. 35 U.S.C. § 103(a) - Claim 3

Claim 3 depends directly from claim 2, which depends directly from independent claim 1 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 1 and dependent claim 2, the Appellant respectfully submits that dependent claim 3 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claims 1 and 2. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claims 1 and 2 further limited by "the steps of: dividing video objects within said base layer into base interleave units; dividing video objects within said enhancement layer into enhancement interleave units; and storing said base interleave units and said enhancement interleave units in an alternating scheme" as recited in claim 3.

That is, and for at least the same reasons provided in Sections A and B above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 3, which depends directly from claim 2 and indirectly from independent claim 1.

Therefore, the Appellant submits that claim 3, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

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D. 35 U.S.C. § 103(a) - Claim 4

Claim 4 depends directly from Claim 3 which depends directly from claim 2, which depends directly from independent claim 1 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 1 and dependent claims 2 and 3, the Appellant respectfully submits that dependent claim 4 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claims 1, 2 and 3. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claims 1, 2 and 3 further limited by "wherein a number of said base interleave units is approximately equal to a number of said enhancement interleave units" as recited in claim 4.

That is, and for at least the same reasons provided in Sections A, B and C above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 4, which depends directly from claim 3 and indirectly from dependent claim 2 and independent claim 1.

Therefore, the Appellant submits that claim 4, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

E. 35 U.S.C. § 103(a) - Claim 5

Claim 5 depends directly from Claim 3 which depends directly from claim 2, which depends directly from independent claim 1 and recites further technical

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features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 1 and dependent claims 2 and 3, the Appellant respectfully submits that dependent claim 5 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claims 1, 2 and 3. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claims 1, 2 and 3 further limited by "wherein a playback time correlating to said base interleave units is approximately equal to a playback time correlating to said enhancement interleave units" as recited in claim 5.

That is, and for at least the same reasons provided in Sections A, B and C above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 5, which depends directly from claim 3 and indirectly from dependent claim 2 and independent claim 1.

Therefore, the Appellant submits that claim 5, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

F. 35 U.S.C. § 103(a) - Claim 6

Claim 6 depends directly from Claim 3 which depends directly from claim 2, which depends directly from independent claim 1 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 1

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and dependent claims 2 and 3, the Appellant respectfully submits that dependent claim 6 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claims 1, 2 and 3. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claims 1, 2 and 3 further limited by "providing a first program chain which links together cells associated with said base interleave units; and providing a second program chain which can be merged with said first program chain to form a hybrid program chain, said hybrid program chain linking together cells associated with said base interleave units and cells associated with said enhancement interleave units in an order appropriate for generating said second version of the digital recording" as recited in claim 6.

That is, and for at least the same reasons provided in Sections A, B and C above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 6, which depends directly from claim 3 and indirectly from dependent claim 2 and independent claim 1.

Therefore, the Appellant submits that claim 6, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

G. 35 U.S.C. § 103(a) - Claim 7

Claim 7 depends directly from Claim 3 which depends directly from claim 2, which depends directly from independent claim 1 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the

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invention of the Appellant with regard to at least the Appellant's independent claim 1 and dependent claims 2 and 3, the Appellant respectfully submits that dependent claim 7 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claims 1, 2 and 3. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claims 1, 2 and 3 further limited by "providing a first program chain which links together cells associated with said base interleave units to generate a first bitstream; providing a second program chain which links together cells associated with said enhancement interleave units to generate a second bitstream; and during playback, merging said first and second bitstreams to generate said second version of the digital recording" as recited in claim 7.

That is, and for at least the same reasons provided in Sections A, B and C above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 7, which depends directly from claim 3 and indirectly from dependent claim 2 and independent claim 1.

Therefore, the Appellant submits that claim 7, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

H. 35 U.S.C. § 103(a) - Claim 8

Claim 8 depends directly from independent claim 1 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make

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obvious the invention of the Appellant with regard to at least the Appellant's independent claim 1, the Appellant respectfully submits that dependent claim 8 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 1. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 1 further limited by "the step of coding said base data in a format substantially similar to MPEG-2" as recited in claim 8.

That is, and for at least the same reasons provided in Section A above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 8, which depends directly from independent claim 1.

Therefore, the Appellant submits that claim 8, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

I. 35 U.S.C. § 103(a) - Claim 9

Claim 9 depends directly from independent claim 1 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 1, the Appellant respectfully submits that dependent claim 9 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 1. The Appellant further submits that Hughes and

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Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 1 further limited by "the step of coding said enhancement data in a format substantially H.264" as recited in claim 9.

That is, and for at least the same reasons provided in Section A above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 9, which depends directly from independent claim 1.

Therefore, the Appellant submits that claim 9, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

J. 35 U.S.C. § 103(a) - Claim 10

Claim 10 depends directly from independent claim 1 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 1, the Appellant respectfully submits that dependent claim 10 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 1. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 1 further limited by "wherein said second version of the digital recording comprises high definition program content" as recited in claim 10.

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That is, and for at least the same reasons provided in Section A above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 10, which depends directly from independent claim 1.

Therefore, the Appellant submits that claim 10, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

K. 35 U.S.C. § 103(a) - Claim 11

Claim 11 depends directly from independent claim 1 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 1, the Appellant respectfully submits that dependent claim 11 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 1. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 1 further limited by "wherein said base layer and said enhancement layer are stored on a single side of said storage medium" as recited in claim 11.

That is, and for at least the same reasons provided in Section A above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing

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multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 11, which depends directly from independent claim 1.

Therefore, the Appellant submits that claim 11, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

L. 35 U.S.C. § 103(a) - Claim 12

Claim 12 depends directly from independent claim 1 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 1, the Appellant respectfully submits that dependent claim 12 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 1. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 1 further limited by "wherein said storage medium is a digital video disc (DVD)" as recited in claim 12.

That is, and for at least the same reasons provided in Section A above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated

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with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 12, which depends directly from independent claim 1.

Therefore, the Appellant submits that claim 12, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

M. 35 U.S.C. § 103(a) - Claim 15

Claim 15 is an independent claim that recites similar relevant features as recited in the Appellant's independent claim 1. More specifically, claim 15 claims a DVD medium including "a base layer comprising base data including cells associated with base interleave units representing a first version of a digital recording" and "an enhancement layer comprising enhancement data including cells associated with enhancement interleave units, wherein said cells associated with said enhancement interleave units which can be combined with said cells associated with said base interleave units data to represent a second version of said digital recording".

As described in Section A above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claim 1 and as similarly claimed in the Appellant's independent claim 15, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or anticipate the Appellant's invention as

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claimed in independent claim 15, which recites similar relevant features as recited in independent claim 1.

Therefore, the Appellant submits that claim 15, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

N. 35 U.S.C. § 103(a) - Claim 16

Claim 16 depends directly from independent claim 15 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 15, the Appellant respectfully submits that dependent claim 16 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 15. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 15 further limited by "wherein said video objects within said base layer are divided into base interleave units, said video objects within said enhancement layer are divided into enhancement interleave units, and said base interleave units and said enhancement interleave units are stored on said storage medium in an alternating fashion" as recited in claim 16.

That is, and for at least the same reasons provided in Section A and M above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1 and 15, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make

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obvious the Appellant's invention as claimed in dependent claim 16, which depends directly from independent claim 15.

Therefore, the Appellant submits that claim 16, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

O. 35 U.S.C. § 103(a) - Claim 17

Claim 17 depends directly from claim 16, which depends directly from independent claim 15 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 15 and dependent claim 16, the Appellant respectfully submits that dependent claim 17 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claims 15 and 16. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claims 15 and 16 further limited by "wherein a number of said base interleave units is approximately equal to a number of enhancement interleave units" as recited in claim 17.

That is, and for at least the same reasons provided in Sections A, M and N above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1, 15 and 16, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 17, which depends directly from claim 16 and indirectly from independent claim 15.

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Therefore, the Appellant submits that claim 17, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

P. 35 U.S.C. § 103(a) - Claim 18

Claim 18 depends directly from claim 16, which depends directly from independent claim 15 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 15 and dependent claim 16, the Appellant respectfully submits that dependent claim 18 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claims 15 and 16. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claims 15 and 16 further limited by "wherein a playback time correlating to said base interleave units is approximately equal to a playback time correlating to said enhancement interleave units" as recited in claim 18.

That is, and for at least the same reasons provided in Sections A, M and N above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1, 15 and 16, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 18, which depends directly from claim 16 and indirectly from independent claim 15.

Therefore, the Appellant submits that claim 18, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

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Q. 35 U.S.C. § 103(a) - Claim 19

Claim 19 depends directly from claim 16, which depends directly from independent claim 15 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 15 and dependent claim 16, the Appellant respectfully submits that dependent claim 19 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claims 15 and 16. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claims 15 and 16 further limited by "a first program chain which links together cells associated with said base interleave units; and a second program chain which can be merged with said first program chain to form a hybrid program chain, said hybrid program chain linking together said cells associated with said base interleave units and cells associated with said enhancement interleave units in an order appropriate for generating said second version of said digital recording" as recited in claim 19.

That is, and for at least the same reasons provided in Sections A, M and N above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1, 15 and 16, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 19, which depends directly from claim 16 and indirectly from independent claim 15.

Therefore, the Appellant submits that claim 19, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

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R. 35 U.S.C. § 103(a) - Claim 20

Claim 20 depends directly from claim 16, which depends directly from independent claim 15 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 15 and dependent claim 16, the Appellant respectfully submits that dependent claim 20 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claims 15 and 16. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claims 15 and 16 further limited by "a first program chain which links together cells associated with said base interleave units to generate a first bitstream; and a second program chain which links together cells associated with said enhancement interleave units to generate a second bitstream; wherein said first and second bitstreams are merged during playback to generate said second version of said digital recording" as recited in claim 20.

That is, and for at least the same reasons provided in Sections A, M and N above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1, 15 and 16, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 20, which depends directly from claim 16 and indirectly from independent claim 15.

Therefore, the Appellant submits that claim 20, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

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S. 35 U.S.C. § 103(a) - Claim 21

Claim 21 depends directly from claim 16, which depends directly from independent claim 15 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 15 and dependent claim 16, the Appellant respectfully submits that dependent claim 21 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claims 15 and 16. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claims 15 and 16 further limited by "wherein said base data is stored in a format substantially similar to MPEG-2" as recited in claim 21..

That is, and for at least the same reasons provided in Sections A, M and N above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1, 15 and 16, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 21, which depends directly from claim 16 and indirectly from independent claim 15.

Therefore, the Appellant submits that claim 21, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

T. 35 U.S.C. § 103(a) - Claim 22

Claim 22 depends directly from independent claim 15 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make

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obvious the invention of the Appellant with regard to at least the Appellant's independent claim 15, the Appellant respectfully submits that dependent claim 22 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 15. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 15 further limited by "wherein said enhancement data is provided in a format substantially similar H.264" as recited in claim 22.

That is, and for at least the same reasons provided in Section A and M above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1 and 15, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 22, which depends directly from independent claim 15.

Therefore, the Appellant submits that claim 22, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

U. 35 U.S.C. § 103(a) - Claim 23

Claim 23 depends directly from independent claim 15 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 15, the Appellant respectfully submits that dependent claim 23 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 15. The Appellant further submits that Hughes and

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Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 15 further limited by "wherein said second version of said digital recording comprises high definition program content" as recited in claim 23.

That is, and for at least the same reasons provided in Section A and M above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1 and 15, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 23, which depends directly from independent claim 15.

Therefore, the Appellant submits that claim 23, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

V. 35 U.S.C. § 103(a) - Claim 24

Claim 24 depends directly from independent claim 15 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 15, the Appellant respectfully submits that dependent claim 24 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 15. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 15 further limited by "wherein said base layer and said

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enhancement layer are stored on a single side of said first storage medium" as recited in claim 24.

That is, and for at least the same reasons provided in Section A and M above, at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1 and 15, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 24, which depends directly from independent claim 15.

Therefore, the Appellant submits that claim 24, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

W. 35 U.S.C. § 103(a) - Claim 25

Claim 25 depends directly from independent claim 15 and recites further technical features thereof. At least because the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the invention of the Appellant with regard to at least the Appellant's independent claim 15, the Appellant respectfully submits that dependent claim 25 is also not rendered obvious and is allowable for at least the reasons stated above with respect to independent claim 15. The Appellant further submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's claim 15 further limited by "wherein said first storage medium is a digital video disc (DVD)" as recited in claim 25.

That is, and for at least the same reasons provided in Section A and M above, at least because Hughes and Horne, alone or in any allowable combination, fail to

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teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1 and 15, the Appellant respectfully submits that Hughes and Horne, alone or in any allowable combination, also fail to teach, suggest or make obvious the Appellant's invention as claimed in dependent claim 25, which depends directly from independent claim 15.

Therefore, the Appellant submits that claim 25, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

**III. THE EXAMINER ERRED IN REJECTING CLAIMS 13-14 AND 26-27
UNDER 35 U.S.C. § 103 AT LEAST BECAUSE THE CITED REFERENCES FAIL
TO MAKE OBVIOUS AT LEAST A METHOD AND DVD MEDIUM FOR
PROVIDING MULTIPLE VERSIONS OF A DIGITAL RECORDING INCLUDING AT
LEAST “BASE LAYER HAVING BASE DATA INCLUDING CELLS ASSOCIATED
WITH BASE INTERLEAVE UNITS AND REPRESENTING A FIRST VERSION OF
THE DIGITAL RECORDING”, “ENHANCEMENT LAYER HAVING
ENHANCEMENT DATA INCLUDING CELLS ASSOCIATED WITH
ENHANCEMENT INTERLEAVE UNITS”, “WHEREIN SAID CELLS ASSOCIATED
WITH SAID ENHANCEMENT INTERLEAVE UNITS CAN BE COMBINED WITH
SAID CELLS ASSOCIATED WITH SAID BASE INTERLEAVE UNITS TO
REPRESENT A SECOND VERSION OF SAID DIGITAL RECORDING”.**

A. 35 U.S.C. § 103(a) - Claims 13-14 and 26-27

The Examiner rejected the Appellant's claims 13-14 and 26-27 under 35 U.S.C. § 103(a) as being unpatentable over Hughes and Horne as applied to claims 1 and 15-16, and further in view of Official Notice. The rejection is respectfully traversed.

The Examiner applied the teachings of Hughes and Horne for the rejection of claims 13-14 and 26-27 as applied above for the rejection of claims 1 and 15-16. As recited above, the Appellant respectfully submits that the teachings of Hughes and Horne, alone or in any allowable combination, absolutely fail to teach, suggest or make obvious the Appellant's claims 1 and 15-16 for at least the reasons recited above. That is, the rejection of claims 13-14 and 26-27 is based, in part, on the contention that Hughes and Horne discloses or suggests the features of claims 1 and 15-16, from which such claims respectively depend. However, in light of the above remarks with respect to claims 1 and 15-16 distinguishing the Appellant's claims over Hughes and Horne, alone or in any allowable combination, it is clear that the combination of Hughes, Horne and the Official Notice is legally deficient, since, at the very least, as explained above, the teachings of Hughes and Horne, alone or in any allowable combination, do not disclose, suggest or make obvious the technical features of the Appellant's claims 1 and 15-16 as describe above and for the reasons described above, from which claims 13-14 and 26-27 respectively depend.

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In addition, the Appellant respectfully submits that the Examiner's Official Notice absolutely fails to bridge the substantial gap between the teachings of Hughes and Horne and the invention of the Appellant. More specifically, the Appellant submits that the Examiner's Official Notice that it is well known in the video encoding/decoding art to have a decoder time stamp and a presentation time stamp added to the encoded video data for the purpose of adjusting the decoding time and the display time during the playback operation absolutely fails to teach, suggest or make obvious at least a method and DVD medium for providing multiple versions of a digital recording including at least "base layer having base data including cells associated with base interleave units and representing a first version of the digital recording", "enhancement layer having enhancement data including cells associated with enhancement interleave units", "wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording" as taught in the Appellant's Specification and claimed in at least the Appellant's claims 1 and 15.

As such, the Appellant respectfully submits that at least because Hughes and Horne, alone or in any allowable combination, fail to teach, suggest or make obvious the Appellant's claims 1 and 15-16 and because the Examiner's Official Notice also fails to render obvious at least the Appellant's claims 1 and 15-16, the Appellant further submits that claims 13-14 and 26-27 are patentably distinct and non-obvious over Hughes, Horne and/or Official Notice, alone or in any allowable combination, for at least the reasons set forth above with respect to claims 1 and 15-16.

Therefore, the Appellant submits that for at least the reasons recited above, the Appellant's claims 13-14 and 26-27 are not rendered obvious by the teachings of Hughes, Horne and/or Official Notice, alone or in any allowable combination, and, as such, claims 13-14 and 26-27 fully satisfy the requirements of 35 U.S.C. § 103 and are patentable thereunder.

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Conclusion

Thus, the Appellant submits that none of the claims presently in the application are rendered obvious under the provisions of 35 U.S.C. § 103. Furthermore, the Appellant also submits that all of these claims satisfy the requirements of 35 U.S.C. §101. Consequently, the Appellant believes all these claims are presently in condition for allowance.

For at least the reasons advanced above, the Appellant respectfully urges that the rejection of claims 15-27 as being non-statutory subject matter under 35 U.S.C. §101 and the rejection of claims 1-12 and 15-25 and 13-14 and 26-27 as being obvious under 35 U.S.C. §103 are improper. Reversal of the rejections in this Appeal is respectfully requested.

Respectfully submitted,

04 October '07
Date



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CLAIMS APPENDIX

1. (Previously Presented) A method of providing multiple versions of a digital recording comprising the step of multiplexing a base layer with an enhancement layer, said base layer having base data including cells associated with base interleave units and representing a first version of the digital recording, and said enhancement layer having enhancement data including cells associated with enhancement interleave units, wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of the digital recording.
2. (Original) The method of claim 1, wherein said multiplexing step comprises the step of interleaving said base layer with said enhancement layer.
3. (Original) The method of claim 2, wherein said interleaving step further comprises the steps of:
 - dividing video objects within said base layer into base interleave units;
 - dividing video objects within said enhancement layer into enhancement interleave units; and
 - storing said base interleave units and said enhancement interleave units in an alternating scheme.
4. (Original) The method of claim 3, wherein a number of said base interleave units is approximately equal to a number of said enhancement interleave units.
5. (Original) The method of claim 3, wherein a playback time correlating to said base interleave units is approximately equal to a playback time correlating to said enhancement interleave units.
6. (Original) The method of claim 3, further comprising the steps of:
 - providing a first program chain which links together cells associated with said base interleave units; and

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providing a second program chain which can be merged with said first program chain to form a hybrid program chain, said hybrid program chain linking together cells associated with said base interleave units and cells associated with said enhancement interleave units in an order appropriate for generating said second version of the digital recording.

7. (Original) The method of claim 3, further comprising the steps of:

providing a first program chain which links together cells associated with said base interleave units to generate a first bitstream;

providing a second program chain which links together cells associated with said enhancement interleave units to generate a second bitstream; and

during playback, merging said first and second bitstreams to generate said second version of the digital recording.

8. (Original) The method of claim 1, further comprising the step of coding said base data in a format substantially similar to MPEG-2.

9. (Original) The method of claim 1, further comprising the step of coding said enhancement data in a format substantially H.264.

10. (Original) The method of claim 1, wherein said second version of the digital recording comprises high definition program content.

11. (Original) The method of claim 1, wherein said base layer and said enhancement layer are stored on a single side of said storage medium.

12. (Original) The method of claim 1, wherein said storage medium is a digital video disc (DVD).

13. (Original) The method of claim 1, further comprising the step of adding at least one time stamp to at least one of said base layer and said enhancement layer.

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14. (Original) The method of claim 13, wherein said at least one time stamp comprises at least one of a decoder time stamp and a presentation time stamp.

15. (Previously Presented) A DVD medium comprising:

 a base layer comprising base data including cells associated with base interleave units representing a first version of a digital recording; and
 an enhancement layer comprising enhancement data including cells associated with enhancement interleave units, wherein said cells associated with said enhancement interleave units can be combined with said cells associated with said base interleave units to represent a second version of said digital recording;
 wherein said base layer and said enhancement layer are interleaved.

16. (Original) The DVD medium of claim 15, wherein said video objects within said base layer are divided into base interleave units, said video objects within said enhancement layer are divided into enhancement interleave units, and said base interleave units and said enhancement interleave units are stored on said storage medium in an alternating fashion.

17. (Original) The DVD medium of claim 16, wherein a number of said base interleave units is approximately equal to a number of enhancement interleave units.

18. (Original) The DVD medium of claim 16, wherein a playback time correlating to said base interleave units is approximately equal to a playback time correlating to said enhancement interleave units.

19. (Original) The DVD medium of claim 16, further comprising:

 a first program chain which links together cells associated with said base interleave units; and

 a second program chain which can be merged with said first program chain to form a hybrid program chain, said hybrid program chain linking together said cells associated with said base interleave units and cells associated with said enhancement interleave units in an order appropriate for generating said second version of said digital recording.

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20. (Original) The DVD medium of claim 16, further comprising:
 - a first program chain which links together cells associated with said base interleave units to generate a first bitstream; and
 - a second program chain which links together cells associated with said enhancement interleave units to generate a second bitstream;
 - wherein said first and second bitstreams are merged during playback to generate said second version of said digital recording.
21. (Original) The DVD medium of claim 16, wherein said base data is stored in a format substantially similar to MPEG-2.
22. (Original) The DVD medium of claim 15, wherein said enhancement data is provided in a format substantially similar H.264.
23. (Original) The DVD medium of claim 15, wherein said second version of said digital recording comprises high definition program content.
24. (Original) The DVD medium of claim 15, wherein said base layer and said enhancement layer are stored on a single side of said first storage medium.
25. (Original) The DVD medium of claim 15, wherein said first storage medium is a digital video disc (DVD).
26. (Original) The DVD medium of claim 15, wherein at least one of said base layer and said enhancement layer comprises at least one time stamp.
27. (Original) The DVD medium of claim 26, wherein said at least one time stamp comprises at least one of a decoder time stamp and a presentation time stamp.

EVIDENCE APPENDIX

Appellant asserts that there is no evidence to be submitted in accordance with this section.

RELATED PROCEEDINGS APPENDIX

Appellant asserts that there are no copies of decisions to be submitted in accordance with this section.